A Corporate Publication of Santee Cooper

PowerSource®

WINTER 2003

Environmental Symposia—
A Decade of Discussing Vital Issues

Wadboo: Preserving an Environmental Treasure | Building a Dream | Electric Lighting: More than Illumination

Santee Cooper—
It began With a Businessman's Dream

From its inception in the 1930s, Santee Cooper has been a product of vision, resourcefulness and innovation.

It all began with an idea, a dream that resided in the mind of a Columbia businessman who was an entrepreneur and visionary of the first order. That was when the words "Santee" and "Cooper" were first joined together as a potential source of power for South Carolina.

It was initially the dream of T.C. Williams, who ran the Columbia Railway and Navigation Co., a steamship service that made regular trips from the capitol city to the port of Charleston, delivering a few passengers and a lot of cargo for export. Although interrupted by the Great Depression, Williams' dream evolved into the reality of what became Santee Cooper.

This issue of PowerSource includes the story of "Building a Dream," the massive construction project that grew out of the Depression era to create jobs for thousands of people and ultimately energy for millions.

It is the story of how vision and innovation during difficult times were the driving forces responsible for the development of a project designed to provide a resource for navigation and power production.

Construction of the Santee Cooper Hydroelectric and Navigation Project began in 1939 and was one of the nation's most remarkable engineering feats, one of epic proportions. More than 12,000 jobless South Carolinians were taken off the relief roles in the state and employed clearing the land—mostly swamps—and constructing the dams, dikes, powerhouse and navigation lock.

The dream became reality on Feb. 17, 1942, when the first Santee Cooper power was generated and this state-owned utility began operating as a resource dedicated to serving the needs and helping improve the quality of life for the people of South Carolina.

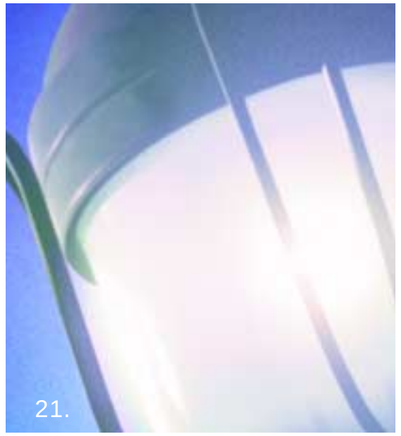
John H. Tiencken Jr.
President and Chief Executive Officer

The rest is history. With the project built, power flowed to the rural areas of South Carolina and to towns and cities such as Myrtle Beach, Conway, Loris, Moncks Corner and St. Stephen. Soon those areas became the locations for new industrial and business growth—bringing jobs, economic activity and an improved quality of life for the people of South Carolina. That was the original purpose and still remains the mission of Santee Cooper.

Santee Cooper POWER

Winter 2003 — Vol. 3, No. 1
PowerSource is published by Santee Cooper Corporate Communications. Use of materials is not authorized without permission of the editor. Address all correspondence to Corporate Communications, Santee Cooper, One Riverwood Drive, Moncks Corner, SC 29461-2901. Phone: (843) 761-4052
email: jlstaffo@santeecooper.com

Ben Cole—Senior Vice President, Community Development and Corporate Communications
Jerry Stafford—Editor
Willard Strong—Senior Writer/Media Relations Specialist
Beth Fondren—Director of Public Relations
Jim Huff—Writer/Photo Editor/Photographer
Phil Fail—Advertising Director/Director of Creative and Technical Services
Carolyn Pilgrim and Stephanie Drago—Proofreaders
Marc Cardwell, CNSG—Design



Cover: *Fallen leaves collected from the Wadboo Conservation Easement in Berkeley County offer a colorful invitation for exploring one of South Carolina's environmental treasures. Photo by Jim Huff.*

Printed on recycled paper.

Wadboo Tract:
a Natural Area Preserved as Environmental Treasure for the people of South Carolina

Bottomland forest, unique limestone bluffs, a Revolutionary War battle site and eight miles of freshwater creek permanently protected through 2,600-acre conservation easement

Santee Cooper has set aside 2,600 acres of its Wadboo Creek property east of Moncks Corner in a permanent nondevelopment conservation easement. The environmental treasures protected by the easement include a bottomland forest, unique limestone bluffs and eight miles of a freshwater creek.

The easement also includes a Revolutionary War battle site and hundreds of acres of cypress swamp that were the environs and hiding grounds of legendary General Francis Marion, whose shrewd, daring raids against the British won him the nickname the Swamp Fox.

***Left**: Looking up from Wadboo Creek into a canopy of autumn colors.*
***Above**: Cypress trees tower over Wadboo Creek where it flows into the east branch of the Cooper River.*

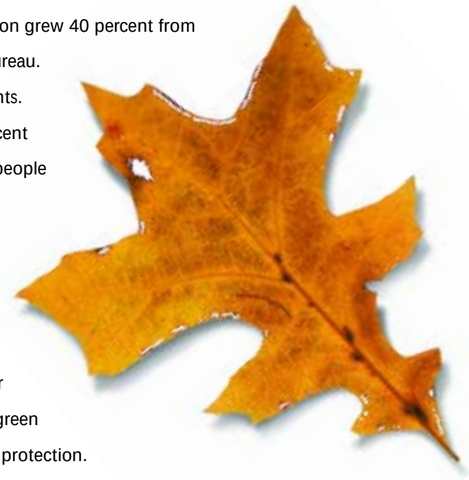
***Top**: Paddling along the dark amber waters of Wadboo Creek.*
***Bottom**: Canoe trail signs and blue-marked trees provide directions and guidelines along the eight-mile waterway through Wadboo Swamp.*

"Wadboo is special — botanically, geographically and historically," says John Tiencken, Santee Cooper president and chief executive officer. "It deserves nondevelopment protection. Green space is disappearing all over South Carolina."

The terms green space, quality of life, urban sprawl and buffer zones were largely unfamiliar to South Carolinians a generation ago. But today, these words have real meaning. South Carolina has transformed itself.

The state no longer is predominantly rural, and the burgeoning suburbs surrounding Charleston, Columbia, Greenville and Spartanburg have put unrelenting pressure on our land. Farms have given way to fairways, subdivisions and SUVs. And percentage-wise, those weren't even the highest growth areas.

For example, Beaufort County's population grew 40 percent from 1990–2000, according to the U.S. Census Bureau. That amounted to nearly 35,000 new residents. Horry County closely followed with a 36 percent growth rate, translating into almost 53,000 people who weren't there in 1990.



Overall, South Carolina added 525,000 citizens in the decade, a growth rate of 15 percent. The need to preserve special places in the Palmetto State has never been greater and will only increase. Santee Cooper has long recognized that special places and green spaces in South Carolina deserve permanent protection.

That's why the Santee Cooper Board of Directors voted in April 2002 to proceed with plans that allowed the Wadboo tract to be protected. This has been accomplished through an agreement between the state-owned utility and the Lord Berkeley Conservation Trust.

The 11-year-old trust also has 509 acres along the Tailrace Canal and Cooper River adjacent to the Wadboo tract protected from development — the result of an easement executed five years ago.

Six hundred and sixty-five acres of the 2,600-acre tract are forested uplands, managed by Santee Cooper since construction of the hydroelectric and navigation project, completed in 1942.

***Top**: Pine forests and saw palmettos are part of the wildlife habitat that borders Wadboo Swamp.*
***Bottom**: Wading through Wadboo Swamp, a Santee Cooper environmental specialist checks the depth and sprays cypress trees with blue paint to mark the canoe trail.*

"Following the successful completion of that easement, representatives of the Lord Berkeley Conservation Trust and Santee Cooper discussed the prospect of protecting the remainder of Wadboo," Tiencken said. "The Berkeley County Greenspace Initiative Committee recommended that Wadboo be considered by Santee Cooper for a permanent nondevelopment easement. We agree."

The Lord Berkeley Conservation Trust's mission is to protect land in Berkeley County for its natural, historic, cultural and scenic value. In addition to the Wadboo tracts, the trust holds easements over 7,000 acres, including properties owned by Nucor Steel Berkeley, Dupont's Cooper River facility, the Berkeley County Water and Sanitation Authority and South Mulberry Plantation.

According to Barry Jurs, the trust's secretary, development pressures in Berkeley County are creating the same type of quality of life challenges as other areas of the state. Part of the "tri-county," which includes Charleston and Dorchester counties, Berkeley County will continue to experience growth simply because of its close proximity to Charleston and more attractive land prices.

"Clemson University's Strom Thurmond Institute recently did a study," says Jurs, who works with the Berkeley County Soil and Water Conservation District, part of the S.C. Department of Natural Resources. "The study concluded that 300,000 new people will move to the tri-county area in the next 27 years with Berkeley County's population gain at 100,000. That's a clarion call. A growing population is threatening the natural attributes that make Berkeley County and other similar areas desirable

***Top**: The Wadboo Tract borders the Swamp Fox Passage of the Palmetto Trail and is very close to Lake Moultrie.*
***Bottom:** The powerful impact of Hurricane Hugo 1989 can still be seen throughout the black water swamp.*

places to live. And when we set aside these areas, it's good that the people can still have opportunities to enjoy them." Tiencken said the easement preserves access to the public on a canoe and kayak trail recently cleared through the swamp. The Wadboo Canoe and Kayak Trail opened last fall.

Much of the tract, about 1,900 acres, is wetlands. There are 665 acres of forested uplands, 256 of which will be protected water-quality buffers. Jurs says the trust provides permanence and this project addresses water quality and the preservation of scenic vistas.

The Old Santee Canal Park is also adjacent to the Wadboo tract. Santee Cooper owns and manages the 195-acre facility, originally opened in 1989 as a state park.

Wadboo is also accessible from the Palmetto Trail, where the trail's Swamp Fox Passage crosses the upper section of Wadboo on Francis Marion National Forest property.

Plantings of corn and winter wheat on open higher ground provide feeding areas for wildlife.

Santee Cooper acquired the Wadboo tract as part of the Santee Cooper Hydroelectric and Navigation Project, constructed between 1939 and 1942. The project created lakes Marion and Moultrie, the state's largest freshwater resource.

Since the 1950s, Santee Cooper has managed the upland areas of the tract as part of its forest-management activities.

The "Frost Belt" and "Rust Belt" exodus will undoubtedly continue to beat a path to the economic opportunities in the New South. It's good to know that steps are being taken to identify, protect and preserve the state's natural areas for future generations.

Says Jurs, "It's a very significant statement that an organization such as Santee Cooper decides to take a step such as this and say, 'This is important to the community where it serves.' And people should know these trusts aren't about stopping development. It's all about planning and having local people working on local issues."

Building a Dream

A Look Back at one of the Nation's Most Remarkable Engineering Feats

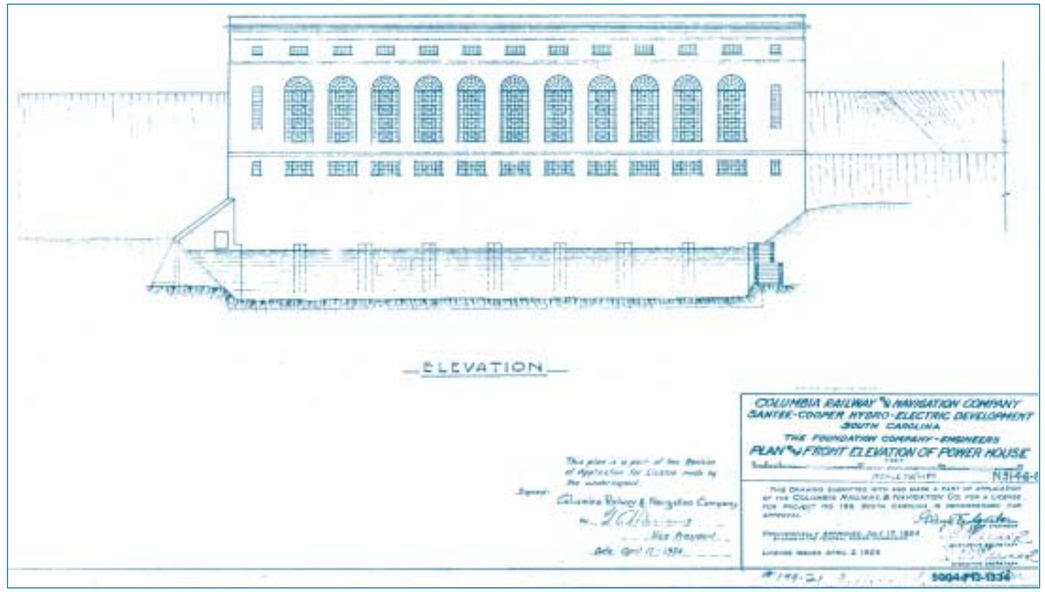
Santee Cooper is one of the largest generators of electric power in South Carolina. It's history begins in the 1920s with the dream of a Columbia businessman and entrepreneur. He and other innovative thinkers and movers believed that a lowland hydroelectric project was possible.

T. C. Williams was an innovative and resourceful Columbia businessman. He ran the Columbia Railway and Navigation Company, a steamship service that made regular trips from the capitol city to the port of Charleston, delivering a few passengers and a lot of cargo for export.

His giant paddle wheelers steamed down the Congaree River until it joined the Wateree, becoming the Santee. From there to Charleston was a long and awkward voyage, first heading east to just below Georgetown where the Santee emptied into the Atlantic Ocean. Turning south, his boats steamed along the Atlantic coast another 50 miles to the Port City.

***Left**: The Pinopolis Power Plant and Navigation Lock, completed in 1942, and the Pinopolis West Dike with its reinforcing berms, constructed in 1990. The hydro plant was renamed Jefferies Hydroelectric Station in 1966. On the right is Lake Moultrie.*

***Above**: T. C. Williams, photographed on the day dignitaries gathered to see construction begin on the Santee Cooper Project in 1939.*



The plans developed by Williams and approved by the Federal Power Commission included two navigation locks and a powerhouse of art deco design with cathedral-styled windows.

Williams envisioned a shorter, more efficient route for his fleet. Studying the success of the 22-mile Santee Canal, constructed from 1793 to 1800 and operated for 50 years, he believed a modern-day version of the historic waterway could be built to connect the Santee and Cooper rivers. This would provide an avenue of commerce to Charleston.

Williams had developed the idea for construction of Lake Murray, just west of Columbia, impounding the inflows from the Saluda and Broad rivers. His vision was to do the same thing in the South Carolina Lowcountry by impounding the inflows of the Santee River (the Wateree plus the Congaree) and creating two giant lakes.

Williams had the proposed project surveyed. He developed plans for building dams and dikes to form dual reservoirs connected by a diversion canal, and even produced engineering drawings for a hydroelectric generating station and a two-stage navigation lock. If built, the project would provide a direct waterway from Columbia through two lakes, a diversion canal and a navigation lock, then on to Charleston. It would also produce a source of electricity to meet the needs of the South Carolina Lowcountry.

After surveying the swamps and woodlands of the Lowcountry, he refined plans for the project and in 1926 applied for a federal license to construct and operate it. His dream came even closer to reality when he received Federal Power Commission License No. 199. Just one step away from beginning construction, his dream was suddenly shattered by the "October Crash of 1929." His fortunes were depleted and the plans for the project were put away.

The dream of T.C. Williams was rekindled in 1933 by visionary legislators, spearheaded by a young Edgefield County freshman state senator named J. Strom Thurmond.

Recognizing the great need for providing a source of electricity for the rural areas of South Carolina, they recommended making use of the plans developed by Williams and the federal license he had obtained to construct the project.

The vast project employed more than 12,500 workers during its 30 months of non-stop clearing and construction.

The funding for such a project was not available at the time within the state, whose Depression-stressed budget was a mere $6 million. However, with a promise for federal funding, the Santee Cooper dream moved forward in 1934 with passage of enabling legislation by the state's General Assembly. It created the South Carolina Public Service Authority for the purpose of constructing and operating the Santee Cooper Hydroelectric and Navigation Project. With the leadership and insistence of U.S. Sen. Jimmy Byrnes, the attention turned to Washington. Byrnes had a passion to do something to stimulate recovery and create jobs for his native South Carolina.

He was relentless in his appeal to President-elect Franklin D. Roosevelt to provide funding for the project under his "New Deal." After FDR was elected, Byrnes overcame great political opposition to his proposal within Washington's bureaucratic circles.

The persistent senator from South Carolina prevailed and President Roosevelt granted his wish, informing him in a letter dated July 15, 1935 that funding for construction of the project was on its way in the form of a federal loan and grant.

Critics said such a project couldn't be done and that such a construction literally would not hold water. They even said that if it were built and did hold water you would never be able to sell all that electricity anyway!

...the Epic Effort of Men, Mules & Machines

More than 12,500 workers toiled for 27 months clearing swamps and woodlands, building dams and dikes and constructing a powerhouse and navigation lock. It was the nation's largest land-clearing project.

Santee Cooper had its beginnings in the swampy, mosquito-infested lowlands of Berkeley, Calhoun, Clarendon, Orangeburg and Sumter counties.

The first job was to fight malaria. Mosquitoes made working in swamps more dangerous than battling the snakes and other slimy creatures that lived in the hot and humid environment. The first building construction, therefore, was for mosquito control.

With malaria held at bay, trees became the next targets. Millions of cypress, pines and oaks were felled and logged out of the muggy, often muddy swamplands. Mules and men did most of the work.

All that effort meant jobs—more than 12,000 workers were involved in the clearing operation and construction, and they were employed off the relief rolls from every county in the state.

Sites were grubbed, stumps removed and timber hauled out to allow the creation of two lakes that would provide a reservoir of more than 225 square miles and create a source for the hydroelectric generation of electricity.

Millions of cubic yards of earth were dug, removed, shaped and compacted to create lakes Marion and Moultrie and build 42 miles of earthen dams, dikes and control structures.

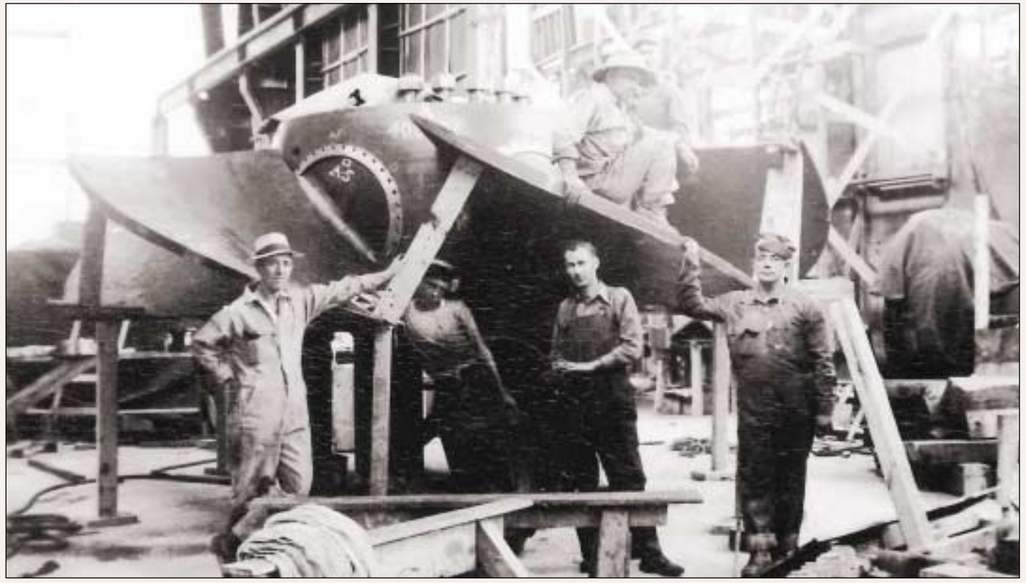
Big machines, big work crews—everything had to be big to create such a big project.

Men, materials, machines and millions of man-hours were part of the engineering, construction and slow growth of the giant complex of turbines, generators, transformers and transmission lines.

In September 1939, a reporter described the excavation scene in Pinopolis as "huge mechanical monsters, snorting and straining in a subtropical jungle."

Building the powerhouse was a major task. Massive excavation, constructing forms, placing steel and pouring concrete were all part of the day-to-day routine of building the dream.

The navigation lock at the Pinopolis Dam was itself a monumental construction. A 75-foot drop from Lake Moultrie to the Tailrace Canal, it was the highest single-lift lock in the world. The giant monolithic structure required endless pours of concrete and miles of some of the largest reinforcing bars ever used.



***Left**: Relying only on hand tools, carpenters created intricate wooden forms for the intake valves of the powerhouse.*
***Above**: Skilled mechanics and craftsmen involved in installing the five turbines and generators.*

With its giant gears and mammoth gates, the lock system would allow boats to travel from Columbia through the lake system and lock to the Cooper River and on to Charleston.

The dams and dikes were built to hold back the water for release through the turbines at the Pinopolis Power Plant. Miles of dirt, clay and fill were removed or moved to create a massive impoundment. It took mules, men and modern machines to shape it, to make it. They built the East Dam, West Dam, North Dike, West Dike and the seven-mile long Diversion Canal connecting lakes Moultrie and Marion. And finally they dug the Tailrace Canal, tying the system into the Cooper River.

One of the bigger jobs was constructing the mighty Santee Spillway, which was the "big relief valve." The spilling of as much as three-quarters of a million gallons of water per second after heavy rainfalls would provide a controlled release of water from the Santee's 15,000-square-mile watershed.

***Top**: All of the wooden forms required to shape the 3.1 million cubic yards of concrete used in the project were constructed on-site.*
***Bottom**: The Santee Spillway and Santee North Dam, holding back the waters of Lake Marion.*

Boats, cranes, steam shovels, trains and bulldozers were among the tools used by the Works Progress Administration work crews that lived in 48 clearance camps throughout the 193,000-acre project area.

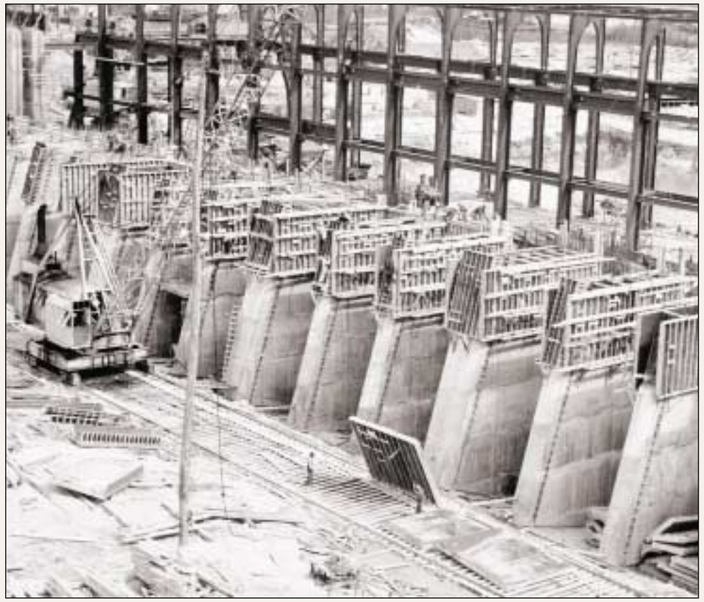
The remarkable effort of constructing the massive Santee Cooper project was considered an engineering feat in its day. It was the largest land-clearing project on

the North American subcontinent at the time of construction. The 7.8-mile long Santee Dam was the longest earthen dam in the world. Even more remarkable was the non-stop, often around-the-clock pace of the accomplishment — from start to finish in a mere two years, two months and 22 days.

What was created was one of South Carolina's most resource-laden assets, an important source of energy, jobs and industrial development. When it began operation ahead of schedule in 1942, Santee Cooper also became an important national asset — generating power in support of the war effort.

With construction finished, the dream became reality. It worked. It held water, and Santee Cooper was able to sell all that electricity—and more. From hydro to steam, to a future using fuels that would include coal, oil, nuclear power and even gas recovered from decaying garbage, for Santee Cooper that dream continues.

***Top**: One of the crosscut hand saws used in felling the thousands of acres of timber.*
***Bottom**: Construction under way on the powerhouse, keystone of the entire Santee Cooper Project.*



Pushing back the dark—

Beyond being bright and economical, electric lighting delivers more than illumination.

Success came late in the afternoon on Oct. 19, 1879. For more than two years, he had searched for the “right” filament. Having installed a carbonized cotton thread in a glass bulb with all of the air evacuated, he connected a source of electricity and it glowed without burning almost immediately. As dawn arrived the next day, it still glowed, and it glowed all day long, finally “burning out” at 1:30 p.m. on Oct. 21, only after the voltage was increased. Thomas Alva Edison had successfully developed the electric incandescent light bulb.

Edison’s invention not only brought an economical and efficient form of illumination. It was also a catalyst for great change, altering the way people lived, worked and communicated.

The earliest applications of the electric light bulb were to deliver a brighter, more efficient form of illumination to the business districts and streets of major cities. Replacing the gas light fixtures, it contributed to making these areas more attractive, more assessable and safer.

***Left**: One of the fashionable outdoor lights provided by Santee Cooper to residential and commercial customers.*
***Above**: Replica of Thomas Alva Edison’s incandescent light bulb.*

Delivering power beyond the streets and into the shops, stores and retail establishments followed almost immediately, further brightening the business districts. Quality of life progressed further as the demand grew for adding this new fixture to the home.

Lighting up the Countryside

The installation of electric lights was a memorable occasion for families residing in the cities and towns, but for those in rural areas, it was and still is heralded as one of life's greatest moments.

Such was the case for Guy and Juanita Nichols. They live on a farm in Saluda County near Prosperity. They are located literally near the end of Mid-Carolina Electric Cooperative's power line, which delivers Santee Cooper-generated electricity to their neighborhood. They recall with vivid details the evening in the fall of 1941 when their lights were" turned on" and for the first time, they enjoyed the convenience and benefits of electric living.

"We all got into our car with all the neighbors and rode around the community just to see the effect of the lighted homes, and that was wonderful. It was beautiful just to see the lights. A lighted room really showed up pretty."

Single, bare bulbs hanging from the ceiling on twisted cords were the first forms of electric lighting. As homes were wired with multiple sockets and baseboard plug-ins, the lighting soon evolved to decorative fixtures and table lamps.

Electricity continued to light up more and more homes across South Carolina in the 1940s with the growth of utilities. Santee Cooper was a major source of generation, with electric cooperatives delivering power to rural areas.

When the Lights Came On Near Georgetown

But electric lighting didn't reach everywhere in South Carolina until the mid-1960s. A historic moment occurred on March 5, 1965 when 70-year-old Prince William Washington, the community leader on Sandy Island, helped throw a switch that delivered power and turned on the lights for the first time for the approximately 200 residents of that island.

***Left**: Edison in his Menlo Park, N.J. laboratory.*
***Top**: One of the early farm homes "lit up" by Santee Cooper-generated power in the early 1940s.*

Santee Cooper power flowed through a submarine cable under the Waccamaw River. It provided service to 22 homes, two churches and a two-room school on the island, located several miles upstream from Georgetown. Sandy Island was among the last rural communities in South Carolina to get electricity.

Outdoor Lighting Began with Incandescents

As electrification of South Carolina flourished within the home, business and workplace, the energy-saving fluorescent light was the new popular product, delivering a softer illumination with much longer bulb life. In the marketplace, neon lights became the fashionable fixtures for attracting customers and promoting business.

At the same time, outdoor lighting was introduced, delivering the benefits of safety and security in addition to illumination.

Zack Dusenbury, Santee Cooper's vice president of retail operations, has been involved with outdoor illumination at Santee Cooper over the utility's period of greatest customer growth.

Dusenbury remembers the first outdoor lights Santee Cooper offered to customers in the 1940s and 50s. The fixtures were installed as street lights in Myrtle Beach, Conway and Moncks Corner shortly after Santee Cooper began operations in 1942.

***Left**: In the 1940s, this neon sign identified one of Santee Cooper's retail offices. SCPSA stands for South Carolina Public Service Authority, Santee Cooper's formal name.*
***Top**: One of the original street lights installed by Santee Cooper.*

"The first lights we had were the old incandescent lights. They were 89-watt and 189-watt bulbs with a flat, pie plate-looking fixture and a corrugated reflector. You screwed the bulb right in the bottom of it. They offered no decoration of any kind, just a functional overhead light that lit up the corner of the street."

Those lights were labor intensive because the life of the bulbs was not very long, probably no more than 1,500 hours, says Dusenbury. "You had to go by and change the bulbs often, and they were so easy to vandalize — too often the targets of BB guns and slingshots."

When mercury vapor lights came along in the 1960s, they were much more efficient, with bulb life extending to more than 20,000 hours. Dusenbury says the new fixtures offered several advantages but also had their downside.

"Compared to a 100-watt incandescent, you got three times the amount of illumination, or you could get the same level of illumination for one-third the cost. Watt-for-watt, you were able to get more lumens with mercury vapor, but with a bluish-white color of light. The 'color rendition' was just not as good as what we have today. However, even with their yellowish light, they improved the ability to see around intersections and such."

Then in the late 70s, high-pressure sodium lamps were introduced and offered still greater efficiency than the mercury vapor, using even less wattage to get the same amount of lumens. These have the yellow/orange color of light output. In spite of the efficiency, color rendition is really the main issue with high-pressure sodium.

Making You Feel Safe While Looking Good

For Santee Cooper the real surge to offer private outdoor lighting to residential customers was in the early 1970s with the 175-watt mercury vapor round fixtures, promoted under Santee Cooper's "Moonlight Madness" program. They offered a degree of yard-to yard safety and security both in neighborhoods and at individual home sites.

Like fireflies, those outdoor fixtures dotted the neighborhoods and subdivisions, casting pools of light on backyards, driveways and patios. Providing an increased sense of security and safety, they were also promoted by utilities and endorsed by law enforcement agencies as a possible deterrent to crime.

"The right light outside will make you feel safer inside," was the promotional message delivered in a series of Santee Cooper ads and brochures in the early 1980s, promoting new decorative lighting for private home and residential community use.

These new fixtures included a "Traditional" (colonial style) and a "Modern" (shoebox style) for streets, walkways and small parking areas. The program also offered the standard cobra head-shaped roadway units used by municipalities for street lighting, the round security light and a brighter floodlight unit used in lighting parking lots and storage yards and to illuminate the fronts of buildings. Higher wattage Modern fixtures were also offered for larger parking areas.

The Traditional and Modern units were mounted on fiberglass poles, while the roadway units and floodlights were usually installed atop wood poles. Wattages and outputs ranged from 150 watts and 16,000 lumens for the traditional units, and up to 1,000 watts and 110,000 lumens for the metal halide floodlights.

Heritage Collection Offers Better, Whiter Light

The most recent line of decorative lighting offered by Santee Cooper features a higher quality fixture providing better, whiter and more efficient illumination. The metal halide units have been designated as Santee Cooper's Heritage Collection, according to Charles Stoll, supervisor of commercial services.

"The Heritage Collection offers a more upscale, higher quality product that enhances both the residential and business environments and is much more durable and aesthetically more pleasing," says Stoll. The fixtures are manufactured by the Holophane Corp. of Newark, Ohio, which has been in the lighting business for more than 100 years.

The Heritage Collection includes seven different models featuring post-top and acorn-styled Drayton, Prince George, Kingston, Lexington, Berkeley and Hampton as well as the pendant-styled Teardrop designs. The first units were installed at Moncks Corner's downtown Unity Park and on Main Street as part of the town's revitalization project.

Since then, more than 900 additional fixtures have been installed. They are in Myrtle Beach, North Myrtle Beach, Garden City, Surfside Beach, Murrells Inlet, Pawleys Island, Conway, Loris and in more than 50 subdivisions, residential developments and commercial projects along the Grand Strand, according to Ron Forrer, engineering associate.

Impact has been more than Illuminating

Since the first Santee Cooper power was delivered, electric lighting has had a major impact on the quality of life for customers and for the citizens of South Carolina.

"That's where the improved quality of living began—with electric lights," says Stoll. "From there, it was step by step, adding the other electrical conveniences that make life more comfortable and more convenient—refrigeration, heating and air conditioning, entertainment and all that. Outdoor decorative lighting has offered the most recent additions to that long line of progress. The improvement and the growth have been phenomenal."

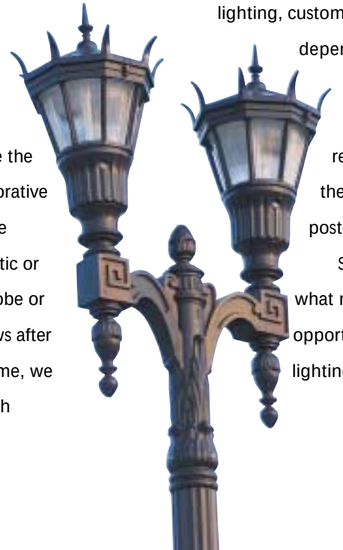
On the retail and business side, it has been equally impressive. Lighting has been a big part of progress, particularly

***Left**: Metal halide lights in Santee Cooper's Jefferies Hydroelectric Generating Station provide bright and efficient illumination.*
***Right**: Exterior lighting provides a distinctive ambiance for both commercial and residential structures.*

along the Grand Strand. "All you have to do is fly over Myrtle Beach at night and look down, especially in the summertime, and it's unbelievable what you see," Stoll says. "With the proliferation of street lighting, lighted storefronts and signs and the big use of neon, you can see directly how much it's growing and how far out it's extending."

Payoff in Outdoor Lighting is for the Customer

Quality has been paramount for outdoor lighting, both in terms of the product and the maintenance requirements. According to Forrer, "A major quality requirement has been for corrosion resistance because we are close to the ocean. Also, while the older type of decorative lighting units have some type of plastic or polycarbonate globe or lens, which yellows after some period of time, we decided to go with time-tested, high-quality molded glass. It doesn't discolor over time and helps to shape and provide proper light distribution.



Forrer points out the major benefits of the rental outdoor decorative lighting for the customer: "There are virtually no up-front expenses and it is maintenance free. If anything goes wrong or if a unit gets damaged, all they do is call our service line and we send someone out to fix or replace it. Lights inside their home or business are not that way because if they don't work, it's up to them to fix or replace — and they have to pay for it. With our decorative rental lighting, customers pay a flat monthly fee depending on the particular style they select. And that fee pays for the rental, all maintenance and the cost of electricity. It's all posted on their monthly bill."

Stoll likes to speculate what may be an ultimate opportunity for outdoor lighting. "One of the things we continue to explore is with good, efficient lighting, how to develop the potential for night-time golf over here. It's easy to light the tee boxes and greens, but those long fairways present a real challenge. If we could develop a glow-in-the-dark ball, we may be able to make it work."

Dusenbury believes that as part of that growth and progress, decorative lighting has established a market with the ability to enrich the brilliance and allure of community, business and downtown areas.

"It is heightening the character and prestige of neighborhoods, residential developments, streetscapes and parking areas as well as pedestrian areas and walkways.

"It seems to be popular and well accepted and looks good when installed. While creating an attractive and inviting atmosphere it is also providing safety and security for our customers, residents and visitors. Best of all, everybody has been happy with it, and its future certainly seems to be bright."

A Timeline on Electric Illumination...

Edison's Incandescent Lamp — 1879
Edison's first successful incandescent lamp was demonstrated, using a carbonized cotton thread as a filament, installed in a glass bulb, with all of the air evacuated. Edison's prototype bulb lasted 45 hours.

He subsequently experimented using cardboard as a filament, which was even more successful. On New Year's Eve, Edison gave his first public demonstration of his new invention, at Menlo Park, N.J. Special trains were run on the Pennsylvania Railroad to accommodate the masses of visitors for the demonstration. About 100 cardboard filament lamps were used lighting the streets, the laboratory and the station. Each lamp was rated at 16 candlepower and consumed about 100 watts. (Average life was about 100 Hrs.)

Mercury-Vapor Lamp — 1901
The first practical mercury-vapor lamp was a tubular source about four feet long, producing a distinctly bluish green light. The first high-pressure mercury lamps similar to the ones used today were introduced in 1934 in the 400-watt size. Today, mercury lamps range from 40 watts to 1000 watts and produce approximately 55 to 60 lumens per watt. The mercury vapor tube is filled with argon gas and a little pearl of mercury. Within three to five minutes after ignition, the mercury is completely vaporized and the characteristic blue-green spectrum of the mercury discharge is emitted.

Tungsten Filament Lamp — 1907
Prior to 1880, all filaments were either carbonized paper or cotton thread. From 1880 to 1894 bamboo was the usual filament material. The first tungsten filament lamps were demonstrated in 1907. The first electric lamps using tungsten filaments appeared in 1907 and were made in wattages up to 500 watts. The filaments were extremely fragile however.

Low Pressure Sodium Lamp — 1932
The first commercial application was for a road lighting installation in the Netherlands with an efficiency of 40 lumens per watt. Today, the low-pressure sodium lamp is considered to be the most efficient lamp available, providing more than 220 lumens per watt. They can be recognized from their deep amber color. Low-pressure sodium fixtures are not used much in America due to their very poor color qualities.

Fluorescent Lamp — 1937
The fluorescent lamp was first introduced to the public at the New York World's Fair in 1937. The lamps were introduced commercially in 1938. The fluorescent lamp is a low-pressure gas discharge source, in which the light is produced predominantly by fluorescent powders activated by ultraviolet energy generated by a mercury arc. The lamp is usually in the form of a long tubular bulb with an electrode sealed at each end.

Metal Halide Lamp — 1960
The first metal halide lamp was developed about 1960. Metal halide lamps are essentially mercury high pressure discharge lamps that have additional metal halides in their arc tubes. Metal Halide lamps provide improved efficiency and color rendering qualities over mercury lamps. The modern metal halide lamp has an efficiency of 85 to 115 lumens per watt.

High-Pressure Sodium Lamp — 1966
The high-pressure sodium lamp provides a more economical source of illumination than mercury, fluorescent, or incandescent and has a more natural color than low-pressure sodium. The high-pressure sodium lamp has an efficiency of approximately 80 to 140 lumens per watt.

Compact Fluorescent Lamp — 1980
The compact fluorescent lamp revolutionized the lighting industry. It is simply a folded fluorescent tube, usually no larger than a standard incandescent light bulb. The ballast is mounted in the base of the lamp allowing most household incandescent lamps to be replaced with the energy saving fluorescent fixtures.

Induction Lighting — 1991
This extraordinary lamp system uses no filaments, electrodes or arcs and has a rated life of more than 100,000 hours, or 12+ years. It operates by sending a high-frequency current from a generator through an induction coil. The induced electromagnetic field excites the gases in the bulb that emit ultraviolet rays, which causes the fluorescent phosphors inside the bulb to glow. The popularity is growing rapidly for this technology. It is the lamp of the future.

St riking a Balance

Major issues associated with improving the quality of life in South Carolina have been addressed over the past decade in the series of annual environmental symposia conducted by Santee Cooper in conjunction with other state agencies and institutions sharing the same concerns.

Board's Environmental Policy Decision in Early 1990s Gave Stewardship Equal Emphasis

What happened in 1991?

The Persian Gulf War started Jan. 16 and ended Feb. 28. The Washington Redskins won the Super Bowl, beating the Buffalo Bills 37-24. The Minnesota Twins toppled the Atlanta Braves to win the World Series, and the University of Oklahoma overwhelmed Florida State in the Orange Bowl to capture the National College Football Championship. Disney's "Beauty and the Beast" premiered at the box office while "Silence of the Lambs" was the biggest attraction among motion pictures for the year. And, Santee Cooper held the first South Carolina Environmental Symposium.

During the early 1990s, Santee Cooper's board of directors adopted a resolution affirming that environmental stewardship was of equal importance to the generation of electric power.

Since then, the state-owned utility has undertaken a number of initiatives to transform this policy statement into practical action. The environmental symposium is an example of this and is now the longest running event of its type in the Palmetto State.

Each year, the symposium brings together leaders in environmental issues, economics, public policy, academics, government and the interested public to discuss topics of specific and long-range concern to this state and region.

The environment has always played a key role in commerce. But in recent years, business and environment were often seen as two faces of a coin. The symposium's goal is to form a new partnership between the two concerns—a partnership in which each recognizes the other as being vital to our future.

Naturalist Rudy Mancke tells attendees of 2002 environmental symposium, "In the world around us, everything is connected."

Format focuses on varied themes, timely issues

Over the past decade, the South Carolina Environmental Symposium has grown to become one of the premier events of its kind in the state. Attendance has grown from about 100 in 1991 to more than 300 in 2002.The annual Governor's Pollution Prevention Awards are presented during a symposium dinner event. A technology fair is held featuring exhibits and displays about environmentally related products and services from public and private companies. In addition to keynote speakers, the event often features general and breakout sessions held over a two-day period.

Symposia offer eye-opening perspectives, challenges

The first symposium was held in the fall of 1991 at Kiawah Island. It featured discussions of successful environmental efforts by various industries, including McDonald's Corp.'s entrance into the environmental awareness. Keynote speaker was Frank Bracken, deputy

***Left**: The late Jay Hair, executive director of the National Wildlife Foundation.*

***Bottom**: Ray Anderson, chairman and president of Interface Inc. He has been branded as "America's greenest CEO."*

***Right**: Santee Cooper President and CEO John Tiencken discussing environmental issues during live broadcast of "Report to the People" carried statewide over the South Carolina Educational Radio Network.*

secretary of the U.S. Department of the Interior.

Eighteen months later in March 1993, the second symposium returned to Kiawah Island with a theme of "Common Ground: Environmental Leadership & Economic Success." This symposium included a look at South Carolina's move from a predominantly rural and agricultural state to one of the nation's leaders in new technologies. Keynote speaker was Bruce Smart, senior fellow of the World Resources Institute and former vice chairman of The Nature Conservancy.

In September 1994, "A Strategic Partnership" was the theme for the third symposium. Participants explored how business and environmental concerns can enter into a partnership and the benefits of such a union. Speakers included

Michael Brown of Patagonia and the late Jay Hair, who was president of the National Wildlife Federation.

In October 1995, the fourth annual symposium moved to Myrtle Beach where participants discussed "The Environmental Agenda: Transition or Revolution." Keynote speaker was Gordon Durnil, attorney, diplomat, politician and author of "The Making of a Conservative Environmentalist."

The fifth symposium's theme in October 1996 was "The Real Environmental Debate: Changing Roles and Responsibilities." Speakers recognized that never have the environmental challenges been greater, but seldom have the opportunities been more promising. Keynote speaker was Trudy Coxe, former secretary of environmental affairs for the Commonwealth of Massachusetts. She is also former director of the Ocean and Coastal Resource Management Division of the National Oceanic and Atmospheric Administration (NOAA).

The sixth symposium was held in October 1997, titled "Towards A New Environmental Vision: Common Sense & Creative Solutions." It examined the changing approaches to environmental issues and how we can make a difference in those changes. The keynote speaker was Mark Stoler, chief environmental, health & safety counsel for W.R. Grace & Co. The symposium also featured an IMAX screening of "Whales," the latest film production of National Wildlife Federation.

In November 1998, the seventh symposium moved to Litchfield Beach where topics surrounded the theme "Strategic Growth and Environmental Quality for the 21st Century." Achieving balance was discussed along with global trends such as population growth, consumption, pollution and urbanization. Addressed as a response to these trends were sustainability in economy, ecology and equity. A highlight of the symposium was the address by David Crockett of the Chattanooga Institute for Sustainability. He discussed how his city is becoming a world leader in sustainability.

"Strategic Growth: Making Choices for South Carolina's Future" was the theme of the eighth symposium and marked the event's second exploration of that highly relevant topic.

The 1999 symposium featured a number of nationally known participants,

most notably Harry Freeman of the Louisiana Environmental Leadership Pollution Prevention Program. Neal Peirce, nationally syndicated columnist and Chairman of the Citistates Group also spoke, as did Susan Kidd of the Georgia Conservancy and Trip Pollard of the Southern Environmental Law Center.

The highlight of the event was an address by former Maryland Gov. Parris Glendening, a noted exponent of strategic growth and a successful manager of its implementation in his home state.

The topic of smart growth returned for a third time in the ninth South Carolina Environmental Symposium, held in the fall of 2000. Addressing "The Business of Smart Growth," the symposium focused on strategic growth, examining issues of water and air quality, land conservation and corporate environmental mentoring.

The symposium moved to Columbia for the tenth event. Coming less than a month after the terrorist attacks on Sept. 11, it was a more subdued event than those in the past, but the issues addressed were even more relevant with the theme of "Achieving Environmental Excellence: Meeting Global Challenges."

Ray Anderson, chairman and chief executive officer of Interface, a global flooring company, was the keynote speaker. A panel discussed "South Carolina in the global economy," while concurrent sessions looked at clean water and clean air topics, contemporary environmental ethical issues and national energy policy for the United States.

The symposium returned to Myrtle Beach in 2002. Planners focused on a more specific topic: "Waterways: The Legacy and Future of Water Policy, Planning and Use in South Carolina."

Discussion centered on the role rivers and waterways play in South Carolina's history, society and economy. Panels looked at the topics including how decisions are made concerning waterways, the intricacies of interstate water policy issues and legal ethics regarding water topics.

Christophe Toulou from the Pew Oceans Commission gave a presentation on waterways and water policy, while a group of utility industry representatives and environmental group members looked at waterways and Federal Energy Regulatory Commission issues. The symposium closed with an overview of current and upcoming water issues at the South Carolina Department of Health and Environmental Control.

Urban growth and waterways have been timely symposia issues.

Sponsors for the 2002 symposium were: Santee Cooper, the Center for Environmental Policy, International Paper Co., MeadWestvaco, National Wildlife Federation, Palmetto Conservation Foundation, S.C. Chamber of Commerce, S.C. Department of Health and Environmental Control, the S.C. Department Of Natural Resources, S.C. Hazardous Waste Management Research Fund, S.C. Universities Research And Education Foundation, S.C. Wildlife Federation, South Carolina Chapter of the Sierra Club, Southeastern Environmental Law Journal, Sustainable Universities Initiative, Strom Thurmond Institute of Government and Public Affairs and University of South Carolina's Institute for Public Service and Policy Research.

"The sponsors are interested in creating an environment in which business and industry can thrive, yet in which responsible environmental stewardship is the rule," said Santee Cooper's Mary Rudloff, director of special projects and coordinator of the symposium. "The partnerships and relationships that have been built over the years at these events are just as important as the educational aspect of the symposium"

Because the symposia have left an indelible mark upon participants who appreciate the opportunity for frank and honest discussion of environmental matters, Santee Cooper will continue to sponsor the S.C. Environmental Symposium.

"The goal of the symposia is to foster communication between the leaders in business, industry, academia and environmental groups in order to establish a set of priorities for developing partnerships and devising a plan or strategy that will bring more environmentally sensitive business decision-making to South Carolina and our nation," said Rudloff.

NewSource

Green Power Has Strong First Year and Gains National Accreditation

Just a little more than a year ago, Santee Cooper dedicated the Horry County Landfill Methane Generating site near Conway, and the state-owned utility's first venture into "Green Power" began. So far, residential and commercial customers have stepped up and "gone green," exceeding first-year goals.

Santee Cooper Green Power is produced using the landfill's methane gas as a fuel for two V-20 engines that turn generators. Santee Cooper purchases the gas from the landfill owner, the Horry County Solid Waste Authority.

Residential and commercial customers have purchased 6,274 monthly 100-kilowatt-hour blocks of Green Power. Additionally, more than 150 businesses have signed on as Green Power Partners in Horry, Georgetown and Berkeley counties.

Residential customers may purchase Green Power in 100-kilowatt-hour blocks for a monthly premium of $3, and commercial customers are offered Green Power in 200-kwh blocks for a monthly premium of $6. In addition, Green Power Partners are commercial customers who have agreed to purchase a specified amount of Green Power based on a percentage of their annual electricity costs. In return, Santee Cooper recognizes them throughout the community for their environmental stewardship. All revenues from the sale of Green Power are set aside to fund other renewable energy projects.

The environmental benefits are significant. For example, two 100-kilowatt-hour blocks of Green Power purchased monthly by residential customers benefit the environment as positively as recycling 1,177 pounds of newspapers or 320 pounds of aluminum cans.

Based on Green Power sales, that converts into recycling more than 153 tons of newspapers or 41 tons of aluminum cans.

Shortly after the Green Power program began, Myrtle Beach became the first "Green Power City" in South Carolina, followed by North Myrtle Beach, Conway, Loris, Moncks Corner and St. Stephen.

Santee Cooper's Green Power efforts were recognized at the 7th Annual Green Power Marketing Conference held Oct. 30 in Washington, D.C. In December, The Center for Resource Solutions announced that Santee Cooper has achieved national Green Power Accreditation for its Green Power program.

The program gained national Green Pricing Accreditation status by meeting or exceeding a series of stringent guidelines that include the use of renewable resources, appropriate product pricing and marketing and customer education. Accredited utility programs also undergo an annual independent verification process to document that they have delivered the green power promised to their customers.

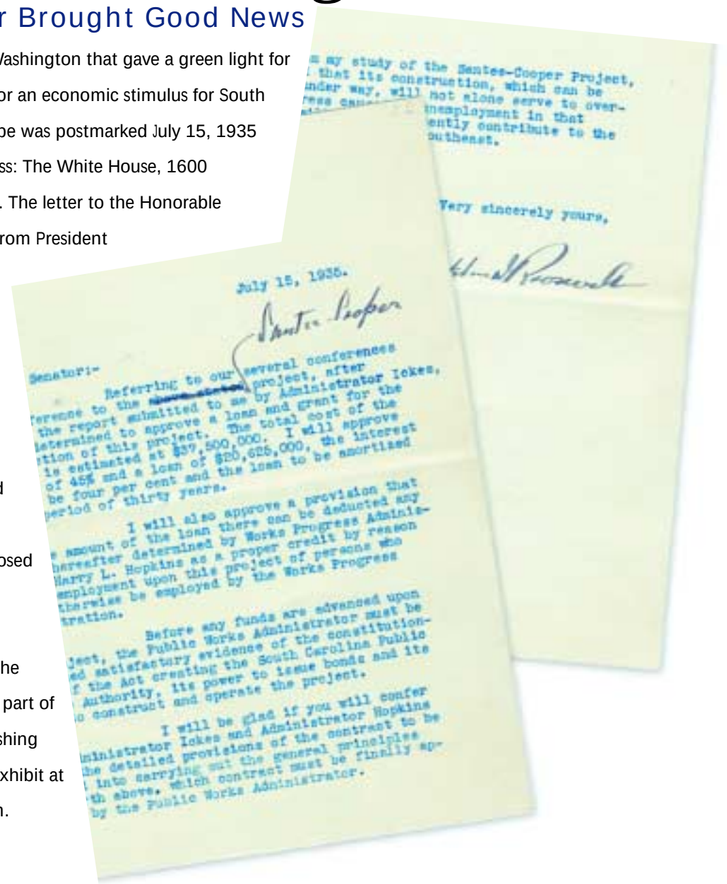
Environmental, consumer and clean energy groups all collaborated through CRS to establish accreditation criteria for South Carolina. The national criteria were reviewed through a local statewide process involving consumer and environmental protection organizations including the South Carolina Coastal Conservation League, State Energy Office and the state chapter of the Sierra Club.

"Santee Cooper is proud to be South Carolina's leader in the area of renewable energy," said Santee Cooper President and Chief Executive Officer John Tiencken. "Our commitment to Green Power is an extension of our environmental stewardship."

Lest we forget...

FDR's Letter Brought Good News

It was a letter from Washington that gave a green light for Santee Cooper and for an economic stimulus for South Carolina. The envelope was postmarked July 15, 1935 and the return address: The White House, 1600 Pennsylvania Avenue. The letter to the Honorable James F. Byrnes was from President Franklin D. Roosevelt. "My dear Senator:" was the salutation that preceded the good news from the president that he had approved federal funding for the proposed Santee Cooper Hydroelectric and Navigation Project. The letter is on display as part of Santee Cooper's "Pushing Back the Darkness" exhibit at the Berkeley Museum.


my study of the Santee-Cooper Project,
that its construction, which can be
under way, will not alone serve to over-
unemployment in that
ently contribute to the
outheast.

Very sincerely yours,

July 15, 1935.

Santee Cooper

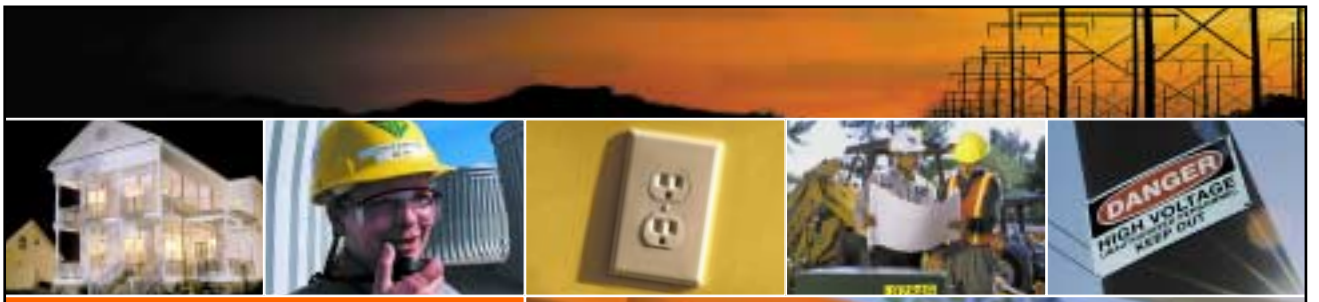
Senator:-

Referring to our several conferences
project, after
erence to the
the report submitted to me by Administrator Ickes,
determined to approve a loan and grant for the
tion of this project. The total cost of the
is estimated at $39,500,000. I will approve
of 45% and a loan of $20,625,000, the interest
be four per cent and the loan to be amortized
period of thirty years.

I will also approve a provision that
amount of the loan there can be deducted any
hereafter determined by Works Progress Adminis-
Harry L. Hopkins as a proper credit by reason
employment upon this project of persons who
thereies be employed by the Works Progress
tration.

Before any funds are advanced upon
ject, the Public Works Administrator must be
ed satisfactory evidence of the constitution-
f the Act creating the South Carolina Public
Authority, its power to issue bonds and its
o construct and operate the project.

I will be glad if you will confer
inistrator Ickes and Administrator Hopkins
he detailed provisions of the contract to be
into carrying out the general principles
th above, which contract must be finally ap-
by the Public Works Administrator.



"The only way to work around electricity is to put safety first."

Curlin Simmons, Lineperson
Santee Cooper

Electricity works wonders. It powers our businesses and our homes. You can't see it. But don't ever forget it's there. In the power lines overhead. In cables buried in the ground. In the plugs in our walls. And it can be very hazardous if you're careless. Visit our special site below for electric safety tips. And while you're there, feel free to explore links to all the other ways Santee Cooper works to make life better for everyone in South Carolina.

scsafeguard.com

Visit www.scsafeguard.com for tips on electric safety.

Santee Cooper® POWER
Dependable Power. Dependable People.